INDEX TO ILLUSTRATIONS

Achondrite, The Furnas County, *in situ* 436
American Astronomical Society—
Columbus, Ohio, December 28-31, 1947, Plate I and Key .....Op. 59
Pasadena, California, June 28-July 1, 1948, Plate II and Key .....Op. 341
Binaries, Smoothed frequency distribution of a spectroscopic 352
Carolina Bays, Charts relating to 517, 523
Carolina Bays, Photographs of certain regions of 518, 520, 524
Comet 1947 *n* 115, 165
Comet 1948 *a* 163
Comet 1948 *g* 397
Comet 1948 *i* 447
Comet 1948 *l*, Diagram of orbit of 566
Comet 1948 *l*, Photograph of 567
Comet Wolf I, Curve showing correlations between brightness and distance from sun 132
Comet, Light curve of 135
Comet, Variation in the diameter of 138
Delaplaine, Roy Welty 207
Eclipse, "Diamond Ring" effect at solar 31
Heavens, Graphic time table of the, in 1948 .....Op. 32
Hydrologic cycle, Schematic diagram of 205
Light curve of α Orionis 226
Light curve of ρ Cassiopeiae 49
Light curve of RR Telescopii 563
Light curve of SS Cygni 113
Meteorite crater, Aerial photograph of the Canyon Diablo, Arizona 497
Meteorites, Etched sections of 4 synthetic metallic 107
Meteoritical pictographs 326, 328
Meteoritics, The exhibit of the Institute of 323
Moon, Photograph H-17 of the 513
Nebulae around novae 462, 463, 464
Novae, Nebulae around 462, 463, 464
Obsidian pebbles, Two symmetrical, and two valverdites 557
Pallasite recovered in Kansas, A 740-pound 47
Planetary motion, Diagram illustrating 7, 72, 181, 182, 303
Rufus, Will Carl 119
Shadow bands by star light 355
Solar crescents, Intensity distribution of, at solar eclipses 357
Stebbins, Dr. Joel 283
Sunspot and aurora maxima 251
Sunspot frequency of year numbers 251
Sunspot problem, Diagrams relating to 254, 258
Temperature variation by decades 377
Terrestrial cycles, Charts related to 362, 363, 364, 365, 367
Valverdite chip, A 555

INDEX TO ILLUSTRATIONS

Achondrite, The Furnas County, *in situ* 436
American Astronomical Society—
Columbus, Ohio, December 28-31, 1947, Plate I and Key .....Op. 59
Pasadena, California, June 28-July 1, 1948, Plate II and Key .....Op. 341
Binaries, Smoothed frequency distribution of a spectroscopic 352
Carolina Bays, Charts relating to 517, 523
Carolina Bays, Photographs of certain regions of 518, 520, 524
Comet 1947 *n* 115, 165
Comet 1948 *a* 163
Comet 1948 *g* 397
Comet 1948 *i* 447
Comet 1948 *l*, Diagram of orbit of 566
Comet 1948 *l*, Photograph of 567
Comet Wolf I, Curve showing correlations between brightness and distance from sun 132
Comet, Light curve of 135
Comet, Variation in the diameter of 138
Delaplaine, Roy Welty 207
Eclipse, "Diamond Ring" effect at solar 31
Heavens, Graphic time table of the, in 1948 .....Op. 32
Hydrologic cycle, Schematic diagram of 205
Light curve of α Orionis 226
Light curve of ρ Cassiopeiae 49
Light curve of RR Telescopii 563
Light curve of SS Cygni 113
Meteorite crater, Aerial photograph of the Canyon Diablo, Arizona 497
Meteorites, Etched sections of 4 synthetic metallic 107
Meteoritical pictographs 326, 328
Meteoritics, The exhibit of the Institute of 323
Moon, Photograph H-17 of the 513
Nebulae around novae 462, 463, 464
Novae, Nebulae around 462, 463, 464
Obsidian pebbles, Two symmetrical, and two valverdites 557
Pallasite recovered in Kansas, A 740-pound 47
Planetary motion, Diagram illustrating 7, 72, 181, 182, 303
Rufus, Will Carl 119
Shadow bands by star light 355
Solar crescents, Intensity distribution of, at solar eclipses 357
Stebbins, Dr. Joel 283
Sunspot and aurora maxima 251
Sunspot frequency of year numbers 251
Sunspot problem, Diagrams relating to 254, 258
Temperature variation by decades 377
Terrestrial cycles, Charts related to 362, 363, 364, 365, 367
Valverdite chip, A 555

GENERAL INDEX

Achondritic fall, The Furnas County, Nebraska, *Frederick C. Leonard*..... 434
Aerolites, The Cavour, South Dakota, *John Davis Buddhue*..... 385
American Association of variable star observers, Variable star notes from the, *Leon Campbell*.....48, 110, 159, 226, 276, 334, 392, 443, 560
American Astronomical Society 568
American Astronomical Society, The seventy-eighth meeting of the, *Curvin H. Gingrich* 59
American Astronomical Society, The seventy-ninth meeting of the, *Oliver Justin Lee* 341
Antarctic "seeing," *Robert S. Dietz* 202
Anyzeski, Vincent, Electrical meteors 167
Anyzeski, Vincent, The amateur astronomer and meteoritics 332
Appleton, Sir Edward, Radio and the stars..... 484
Asteroid notes, *Hugh S. Rice*.....37, 98, 210, 268, 318, 379, 429, 490, 541
Astronomer, Tennyson, a Victorian, *Paul Mowbray Wheeler* 527
Astronomers, National Capital 508
Astronomers, Pittsburgh convention of amateur..... 171
Astronomical League Northeastern region of the..... 279
Astronomical League, The Milwaukee convention of the 340
Astronomical meeting 339
Astronomical Society meetings, The Cleveland 398
Astronomical Society, The Rittenhouse.....53, 116, 168, 230, 279, 339, 568
Astronomical Union, International 53
Astronomical Union, The Zürich meeting of the International, *Otto Struve*... 401
Astronomical wall chart 168
Astronomy charted 448
Astronomy of the A.A.A.S., The Chicago meeting of the section on, *C. C. Wylie* 144
Astronomy, Some comments on the future of positional work in, *W. J. Luyten, J. Schilt, P. van de Kamp*..... 421
Bartlett, James C., Jr., Solar bookkeeping 470
Bartlett, James C., Jr., Some experiments with color in natural and artificial sunspots 89
Bird migration, Telescopic observation of 232
Bobrovnikoff, N. T., Periodic comet Wolf I 130
Book reviews—
Astronomie. Les Astres; L'Universe, by L. Rudaux and G. de Vaucouleurs 452
Astronomy, by William Lee Kennon..... 454
Chart of the Isotopes 453
Colloid Science—A Symposium 232
Geology applied to Selenology III. Lunar Catastrophic History, by J. E. Spurr 454
Magnetic Declination in the United States..... 173
Making your own Telescope, by Allyn J. Thompson..... 281

Mathematics as a Culture Clue and Other Essays, by Cassius Jackson Keyser . . . 175
Observations of Planetary Surfaces . . . 452
Publications received . . . 55, 457, 509
Rhinehart Mathematical Tables, by Harold D. Larsen . . . 453
Sunspots in Action, by Harlan True Stetson . . . 176
Tables Cronologicas del Sol pars el Siglo XX, by Alfred Völsch . . . 54
Techniques of Observing the Weather, by Benarthur C. Hayes . . . 174
The Life and Times of Tycho Brahe, by John Allyne Gade . . . 54
The Naming of the Telescope, by Edward Rosen . . . 55
The Stars are Yours, by James S. Pickering . . . 509
University Cincinnati Publications . . . 173
Bowerman, W. G., Life among the sunspots . . . 13
Brasch, Frederick Edward, Will Carl Rufus . . . 119
Buddhue, John Davis, A sieve analysis of crushed sandstone from the Canyon Diablo, Arizona, meteorite crater . . . 387
Buddhue, John Davis, Synthetic metallic meteorites . . . 105
Buddhue, John Davis, The Cavour, South Dakota, aerolites . . . 385
Campbell, Leon, Variable star notes from the American Association of variable star observers . . . 48, 110, 159, 226, 276, 334, 392, 443, 560
Carolina Bays, A reply to an article on the origin of the, *William F. Prouty* 499
Carolina Bays, Meteoritic origin of the, questioned, *Chapman Grant* . . . 511
Carpenter, Arthur Howe, Principles of historical geology applied to neighboring planets and life on Mars . . . 233
Clayton, H. H., Terrestrial cycles . . . 360
Comet 1923 IV (Whipple) . . . 337
Comet 1929 II (Forbes) . . . 166, 230, 278, 336, 396
Comet 1946 *h* (Jones) . . . 52, 115
Comet 1946 *k* (Bester) . . . 52, 115, 166, 229, 278, 336, 397
Comet 1947 *f* (Faye) . . . 52, 115, 229
Comet 1947 *j* (Reinmuth) . . . 52, 115
Comet 1947 *m* (Honda) . . . 51
Comet 1947 *n* . . . 114, 164
Comet 1948 *a* (Mrkos) . . . 163, 229
Comet 1948 *b* (Wirtanen) . . . 164
Comet 1948 *c* (Keuskamp) . . . 277, 336
Comet 1948 *d* (Pajdusakova-Mrkos) . . . 278, 336, 392, 447, 502
Comet 1948 *g* (Honda-Bernasconi) . . . 396, 447
Comet 1948 *h* (Wirtanen) . . . 446
Comet 1948 *i* (Ashbrook) . . . 446, 501
Comet 1948 *j* (Johnson) . . . 447, 501
Comet 1948 *k* (Wirtanen) . . . 567
Comet 1948 *l* . . . 567
Comet Neujmin 1 . . . 337, 396
Comet Neujmin 2 . . . 337, 567
Comet Oterma 3 . . . 115, 337
Comet Schwassmann-Wachmann 1 . . . 51, 52, 115, 166, 229, 278, 337
Comet Schwassmann-Wachmann 2 . . . 52, 115, 337
Comet Wolf I, Periodic, *N. T. Bobrovnikoff* . . . 130
Comet Notes, *Daniel L. Harris III* . . . 277, 336

Comet Notes, *G. Van Biesbroeck*.....51, 114, 163, 229, 395, 446, 501, 565
Comet strikes the earth, A, (review), *Lincoln La Paz*..... 158
Communications and comments 167, 337, 503
Copernicus, The planetary theory of, *A. Pannekoek* 2
Cross, Frank C., A new glass of possibly extraterrestrial origin..... 549

Delaplaine, Roy Welty, *Peter van de Kamp* 206
Dietz, Robert S., Antarctic "seeing" 202
Duodecimal society of America prize, The 169

Earth, A review of theories on the origin of the, *Willem J. Luyten*..... 198
Eclipse of May 8-9, 1948, The annular 146
Eclipse of November 12, 1947, The partial solar, *Victor A. Estremadoyro*.... 482
Eclipse photograph showing the "Diamond Ring" effect..... 31
Eclipse record, An ancient solar 169
Editor's note 568
Ehrenberg, Henry, A possible explanation of an exploding universe..... 337
Electrical meteors, *Vincent Anyzeski* 167
Estremadoyro, Victor A., The partial solar eclipse of November 12, 1947.... 482
Exhibits at the Library of Congress 449

Farnsworth, Alice H., Summary of sunspot observations at Mount Holyoke College, 1947 116
Feldman, Richard L., Shadow band project of 20 May 1947 24

Gaviola, E., On shadow bands at total eclipses of the sun 353
General notes.....52, 116, 168, 230, 279, 338, 397, 448, 508, 568
Geology applied to neighboring planets and life on Mars, Principles of historical, *Arthur Howe Carpenter* 233
Gingrich, Curvin H., The seventy-eighth meeting of the American Astronomical Society 59
Glass, Light absorption in colored, *H. B. Rumrill* 192
Glass of possibly extraterrestrial origin, A new, *Frank C. Cross*..... 549
Gleissberg, W., A preliminary forecast of solar activity..... 399
Grant, Chapman, Meteoritic origin of the Carolina Bays questioned..... 511
Greenstein, Jesse L., The seventieth anniversary of Professor Joel Stebbins and of the Washburn Observatory 283
Greenwich hour angle of a planet, A simplified method of finding the, *Paul E. Wylie* 312

Halley lecture, Dr. Fritz Zwicky to give..... 280
Harris, Daniel L. III, Comet notes 277, 336
Hoffmeister, C., Meteoric currents of the Cygnid type 215
Hydrologic cycle, The, *Franklin J. Ryder* 204

Inch, The 200 1
International Astronomical Union, The Zürich meeting of the, *Otto Struve*.. 401
Jones, Harold Spencer, The development of navigation..... 263

Kelly, Allan O., On the advancement of science 503
Kepler, The planetary theory of, *A. Pannekoek*..... 63
Khan, Mohd. A. R., Streak meteors without perceptible nuclei..... 498
King, Henry C., The invention and early development of the achromatic telescope 75

La Paz, Lincoln, Abstracts of two papers read at the ninth meeting of the Society 109
La Paz, Lincoln, A comet strikes the earth (review) 158

La Paz, Lincoln, Meteoritical pictographs 324
La Paz, Lincoln, Sampling theory applied to meteoritic populations.....220, 269
La Paz, Lincoln, The energy of the Podkamennaya, Tunguska, Siberia, meteoritic fall 330
La Paz, Lincoln, The exhibit of the Institute of Meteorites 322
La Paz, Lincoln, The valverdites 552
Lee, Oliver Justin, The seventy-ninth meeting of the American Astronomical Society 341
Leonard, Frederick C., A classificational sequence of meteorites..... 41
Leonard, Frederick C., A request for information concerning newly reported meteoritic falls 442
Leonard, Frederick C., A simplified classification of meteorites and its symbolism 437
Leonard, Frederick C., Contributions of The Meteoritical Society.....
.....41, 105, 156, 217, 269, 322, 385, 434, 496, 549
Leonard, Frederick C., The Furnas County stone of the Norton County, Kansas—Furnas County, Nebraska, achondritic fall..... 434
Leonard, Frederick C., The largest known meteorites of the world..... 156
Life among the sunspots, *W. G. Bowerman* 13
Light absorption in colored glass, *H. B. Rumrill*..... 192
London may get its planetarium..... 261
Luby, William A., The solution of the sunspot problem..... 252
Luyten, Willem J., A review of theories on the origin of the earth..... 198
Luyten, Willem J., Some comments on the future of positional work in astronomy 421
McLaughlin, Dean B., The nebulae around novae 459
Mars, Jupiter, and Saturn: Approximate conjunctions, *R. B. Weitzel*..... 425
Mathematics, Meeting of teachers of 171
Mathematics, The National Council of teachers of 508
Meteor notes from the American Meteor Society, *Charles P. Olivier*.....
.....39, 100, 151, 212, 319, 381, 431, 491, 542
Meteor Society, Dr. La Paz appointed a regional director of the American.. 391
Meteor streams, 1948, The day-time 449
Meteoric currents of the Cygnid type, *C. Hoffmeister*..... 215
Meteoric showers, On naming 109
Meteorite crater, A sieve analysis of crushed sandstone from the Canyon Diablo, Arizona, *John Davis Buddhue* 387
Meteorite crater, Future explorations at the Canyon Diablo, Arizona..... 559
Meteorite crater, The non-circularity of the Canyon Diablo, Arizona, *Walter W. Zimmerman* 496
Meteorite finds at Brenham Township, Kiowa County, Kansas, Some real... 47
Meteorite of 1947 February 12, The Russian, *John H. Schilling*..... 389
Meteorite, The oxide crust of the Willamette, Oregon, *Russell A. Morley*... 558
Meteorites, A classificational sequence of, *Frederick C. Leonard*..... 41
Meteorites, A simplified classification of, and its symbolism, *Frederick C. Leonard* 437
Meteorites of the world, The largest known, *Frederick C. Leonard*..... 156
Meteorites, Synthetic metallic, *John Davis Buddhue*..... 105
Meteoritic fall, The energy of the Podkamennaya, Tunguska, Siberia, *Lincoln La Paz* 330

Meteoritic falls, A request for information concerning newly reported, *Frederick C. Leonard* 442
Meteoritic material, A request for information concerning..... 170
Meteoritic origin of the Carolina Bays questioned, *Chapman Grant* 511
Meteoritic populations, Sampling theory applied to, *Lincoln La Paz*.....220, 269
Meteoritical pictographs, *Lincoln La Paz* 324
Meteoritical research at the Institute for nuclear studies..... 331
Meteoritical Society, Contributions of the, *Frederick C. Leonard*.....
.....41, 105, 156, 217, 269, 322, 385, 434, 496, 549
Meteoritical Society, The notice of the 11th meeting.....275, 391
Meteoritics, The amateur astronomer and, *Vincent Anyzeski*..... 332
Meteoritics, The exhibit of the Institute of, *Lincoln La Paz*..... 322
Meteorologist examination, A 508
Meteors and meteorites.....39, 100, 151, 212, 269, 319, 381, 431, 491, 542
Meteors, The orbits of three stone-dropping, *C. C. Wylie*..... 273
Meteors, Whistling, *John W. Winter* 506
Meteors without perceptible nuclei, Streak, *Mohd. A. R. Khan*..... 498
Monnig, Oscar E., Some real meteorite finds at Brenham Township, Kiowa County, Kansas 47
Morley, Russell A., The oxide crust of the Willamette, Oregon, meteorite... 558
Nautical Almanac, The British 279
Navigation, The development of, *Harold Spencer Jones*..... 263
Nebulae around novae, The, *Dean B. McLaughlin*..... 459
Newton's Principia 279
Novae, The nebulae around, *Dean B. McLaughlin* 459
Observatory at the University of Michigan, New astronomical..... 173
Observatory, Australian gift to Royal 231
Observatory, Stonyhurst College, *P. J. Treanor*..... 487
Observatory, The seventieth anniversary of the Washburn, *Jesse L. Greenstein* 283
Observatories, The status of the German 279
Occultation predictions.....38, 99, 150, 211, 269, 317, 380, 430, 490, 541
Olivier, Charles P., Meteor notes from the American Meteor Society.....
.....39, 106, 151, 212, 319, 381, 431, 491, 542
Orbits The computation of 397
Origin and development of Craters, A comment on Jagger's..... 109
Pallasite, A note on "The Lost" Port Orford, Oregon, *J. Hugh Pruett*..... 158
Palomar Observatory, Dedication of the..... 339
Palomar Observatory stamps announced 398
Palomar Observatory stamps inaugurated 450
Pannekoek, A., The planetary theory of Copernicus 2
Pannekoek, A., The planetary theory of Kepler 63
Pannekoek, A., The planetary theory of Newton 177
Pannekoek, A., The planetary theory of Laplace 300
Personal notices 52, 168, 230, 279, 338, 397, 448, 508
Planetarium for students and home star gazers, Portable 53
Planetarium, London may get its 261
Planetary phenomena in 1948, *Paul S. Watson* 31
Planetary theory of Copernicus, The, *A. Pannekoek* 2
Planetary theory of Kepler, The, *A. Pannekoek* 63
Planetary theory of Newton, The, *A. Pannekoek* 177

Planetary theory of Laplace, The, *A. Pannekoek* 300
Planet notes, *Raymond H. Wilson, Jr.*..36, 97, 149, 209, 267, 316, 378, 428, 489, 540
Planets and life on Mars, Principles of historical geology applied to neighboring, *Arthur Howe Carpenter* 233
Poem and parody 57
Prouty, William F., A reply to an article on the origin of the "Carolina Bays" 499
Pruett, J. Hugh, A note on "The Lost" Port Orford, Oregon, pallasite..... 158
P. van de Kamp, Some comments on the future of positional work in astronomy 421
Reflector for Krakow Observatory, A 20-inch 170
Rice, Hugh S., Asteroid notes.....37, 98, 210, 268, 318, 379, 429, 490, 541
Rittenhouse, David, as a Newtonian philosopher and defender, *W. Carl Rufus* 122
Rufus, W. Carl, David Rittenhouse as a Newtonian philosopher and defender 122
Rufus, Will Carl, *Frederick Edward Brasch* 119
Rumrill, H. B., Light absorption in colored glass 192
Rumrill, H. B., Telescope tripods 479
Ryder, Franklin J., The hydrologic cycle 204
Schilling, John H., The Russian meteorite of 1947 February 12 389
Schilt, J., Some comments on the future of positional work in astronomy.... 421
Schove, D. Justin, Sunspot epochs 188 A.D. to 1610 A.D..... 247
Science, On the advancement of, *Allan O. Kelly*..... 503
Science talent search, Eighth annual 568
Shadow band project of 20 May 1947, *Richard L. Feldman* 24
Shadow bands at total eclipses of the sun, On, *E. Gaviola* 353
Sky patrol by The Meteoritical Society, A proposed, *C. C. Wylie*..... 217
Solar activity, A preliminary forecast of, *W. Gleissberg*..... 399
Solar bookkeeping, *James C. Bartlett, Jr.* 470
Spectroscopic binaries, The distribution of the longitudes of periastron of, *Otto Struve* 348
Stars, Radio and the, *Sir Edward Appleton* 484
Stebbins, the seventieth anniversary of Professor Joel, *Jesse L. Greenstein*... 283
Struve, Otto, The distribution of the longitudes of periastron of spectroscopic binaries 348
Struve, Otto, The Zürich meeting of the International Astronomical Union.. 401
Sun is a variable star, Some further facts suggesting that our, *H. L. Willis*.. 370
Sunspot epochs 188 A.D. to 1610 A.D., *D. Justin Schove* 247
Sunspot observations at Mount Holyoke College, 1947, Summary of, *Alice H. Farnsworth* 116
Sunspot problem, The solution of the, *William A. Luby* 252
Sunspots, Life among the, *W. G. Bowerman* 13
Sunspots, Some experiments with color in natural and artificial, *James C. Bartlett, Jr.* 89
Technical books, Catalog of 230
Telescope adjustments, The 200-inch 172
Telescope, Advanced photographic 28
Telescope, The invention and early development of the achromatic, *Henry C. King* 75
Telescope, The 200-inch 1
Telescope tripods, *R. B. Rumrill* 479
Tennyson, a Victorian astronomer, *Paul Mowbray Wheeler* 527

Terrestrial cyclyes, *H. H. Clayton* 360
Treanor, P. J., Stonyhurst College Observatory..... 487
Tribute to Miss Anne S. Young, A 314
Universe, A possible explanation of an exploding, *Henry Ehrenberg* 337
Uranus, New satellite to 231
Valverdites, The, *Lincoln La Paz* 552
Van Biesbroeck, G., Comet notes.....51, 114, 163, 229, 395, 446, 501, 565
van de kamp, Peter, Roy Welty Delaplaine 206
Variable star notes from the American Association of variable star observers, *Leon Campbell*.....48, 110, 159, 226, 276, 334, 392, 443, 560
Variable star, Some further facts suggesting that our sun is a, *H. L. Willis*.. 370
Variable stars, *Leon Campbell* 48, 110, 159, 226, 276, 334, 392, 443, 560
Venus and Jupiter, Triple planetary conjunctions of, *R. B. Weitzel*..... 477
Watson, Paul S., Planetary phenomena in 1948 31
Weatherwise 169
Weitzel, R. B., Mars, Jupiter, and Saturn: Approximate conjunctions..... 425
Weitzel, R. B., Triple planetary conjunctions of Venus and Jupiter..... 477
Wheeler, Paul Mowbray, Tennyson, a Victorian astronomer..... 527
Will Carl Rufus, *Frederick Edward Brasch* 119
Willis, H. L., Some further facts suggesting that our sun is a variable star.. 360
Wilson, Raymond H., Jr., Planet notes.36, 97, 149, 209, 267, 316, 378, 428, 489, 540
Winter, John W., Whistling meteors 506
Wylie, C. C., A proposed sky patrol by The Meteoritical Society..... 217
Wylie, C. C., The Chicago meeting of the section on astronomy of the A.A.A.S. 144
Wylie, C. C., The orbits of three stone-dropping meteors 273
Wylie, Paul E., A simplified method of finding the Greenwich hour angle of a planet 312
Young, A tribute to Miss Anne S. 314
Zimmerman, Walter W., The non-circularity of the Canyon Diablo, Arizona, meteorite crater 496